

*Ganguroo robustiter* sp. nov. (Macropodoidea, Marsupialia), a middle to early late Miocene basal macropodid from Riversleigh World Heritage Area,  
Australia

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SUPPLEMENTARY DATA 1

TABLE S1. Measurements of the lower dentition of type and referred material of *Ganguroo robustiter* in mms. L = anteroposterior length, AW = anterior width, PW = posterior width, dp = deciduous premolar, p = premolar, m = molar.

Specimen	Riversleigh Locality	dp2		dp3		p3		m1			m2			m3			m4		
		L	W	L	W	L	W	L	AW	PW	L	AW	PW	L	AW	PW	L	AW	PW
QMF36338	AL90 Site	4.28	2.73	3.8	2.56			4.18	2.79	2.99	4.39	3.15	3.3						
QMF36338	AL90 Site	4.29	2.88	3.54	2.53			4.01	2.75	3.12	4.38	3.25	3.59						
QMF40114	AL90 Site					6.92	3.86	4.16	3.1	3.15	4.43	3.42	3.4	4.39	3.49	3.4	4.6	3.43	3.06
QMF40114	AL90 Site					6.98	3.5	3.93	3.07	3.26	4.35	3.58	3.54	4.36	3.7	3.42	4.44	3.38	3.09
QMF30845	AL90 Site										4.26	3.17	3.06						
QMF30845	AL90 Site	3.59	3.22	3.7	2.53			3.96	2.83	2.95	4.25	3.3	3.3						
QMF56311	AL90 Site	4.67	3.09	3.67	2.62			4.06	3	3.03	4.2	3.53	3.25	4.62	3.73	3.49			
QMF41249	AL90 Site					7	3.43	4.18	3.14	3.16	4.15	3.47	3.41	4.5	3.66	3.57	4.55	3.47	3.07
QMF36331	AL90 Site					7.66	4.01												
QMF56309	AL90 Site					7.46	3.39	4.23	3.06	3.09	4.44	3.38	3.39	4.93	3.52	3.78	4.78	3.42	3.04
QMF56298	AL90 Site							4.32	2.72	2.99						3.06			
QMF56298	AL90 Site	4.05	2.71	3.3	2.59			3.93	2.96	3.01	4.2	3.29	3.18	4.32	3.29	3.15			
QMF50420	AL90 Site					7.56	4.12	4.37	3.15	3.29	4.96	3.76	3.75	5.09	3.87	3.73	5.19	3.72	3.16
QMF56317	Angela's Sinkhole site					8.07	3.91												
QMF56317	Angela's Sinkhole site					7.98	4.22	4.08	3.68	3.81	3.86	3.9	3.46	4.84	3.62	3.46			
QMF30539	Arachnid Ridge Site					6.96	3.39												
QMF52810	Dome Site					6.77	3.45	4.26	2.98	3.14	4.4	3.54	3.33	4.82	3.62	3.43	4.83	3.64	3.25
QMF23778	Encore Site							4.46	3	3.18									
QMF30535	Encore Site										4.53	3.42	3.11	5.09	3.41	3.19			
QMF23782	Encore Site										4.65	3.47	3.32	5.13	3.81	3.61			
QMF55107	Encore Site			3.92	2.82														
QMF55105	Encore Site													5.61	4.3	4.2			
QMF56312	Encore Site					8.58	3.75												
QMF57006	Gag Site					7.23	3.94	4.07	3.06	3.09	4.49	3.56	3.34						
QMF57007	Gag Site					8.1	4.02	4.08	3.13	3.32	4.46	3.53	3.6	4.7	3.58	3.64		3.53	
QMF57002	Gag Site					6.85	3.36	3.97	2.77	2.98	4.31	3.22		4.44	3.26	3.13	4.43	2.89	2.73

TABLE S1. (Continued)

Specimen	Riversleigh Locality	dp2		dp3		p3		m1			m2			m3			m4		
		L	W	L	W	L	W	L	AW	PW	L	AW	PW	L	AW	PW	L	AW	PW
QMF20527	Gag Site							3.93	2.96	3.2	4.4	3.34	3.41	4.78	3.67	3.75	4.94	3.64	3.27
QMF23836	Gag Site	4.28	3.02	3.84	2.95			4.07	3.08	3.22	4.43	3.17	3.37						
QMF19583	Gag Site					6.96	3.77	3.96	3.18	3.32	4.27	3.64	3.55	4.52	3.78	3.53			
QMF20350	Gag Site																5.15	3.6	3.61
QMF20335	Gag Site							4.14	3.22	3.47									
QMF20344	Gag Site							4.03	2.92	3.23									
QMF20329	Gag Site							4.1	2.94	3.13									
QMF20330	Gag Site										4.57	3.44	2.99						
QMF20328	Gag Site					6.88					4.4	3.28	3.17						
QMF56299	Gag Site										3.99	3.34	3.19	4.19	3.42	3.15	4.12	3.16	2.49
QMF56300	Gag Site	4.38	3.31	4.25	2.94														
QMF56308	Gag Site	3.43	2.35	3.14	2.73	6.44		4.21	2.94	3.17									
QMF56306	Gag Site																4.94	3.51	3.43
QMF56303	Gag Site					6.86	3.86	3.9	2.78	3.08	4.37	3.51	3.47	4.4	3.46	3.26			
QMF56304	Gag Site					7.01	3.66				4.56	3.35	3.52						
QMF56302	Gag Site					6.54	3.51												
QMF56305	Gag Site	4.39	3.33	4.58	3.52	7.03		4.12	3.11	3.3	4.38	3.36	3.45	4.75					
QMF31346	Golden Steph Site					6.31	3.12	3.97	2.76	2.91	4.02	3.2	3.13	4.37	3.46	3.22	4.49	3.47	3.14
QMF39855	Golden Steph Site					7.55	3.57	3.69	2.97	3.03	3.96	3.23	3.26	4.03	3.42	3.21	4	3.15	2.66
QMF57000	Henk's Hollow Site					7.27	3.56	4.09	3.08	2.98	4.43	3.52	3.37	4.61	3.51	3.44	4.62	3.31	2.91
QMF57003	Henk's Hollow Site					6.99	3.33	4.12	2.71	3.11	4.14	3.15	3.25	4.21	3.36	3.12	4.43	3.07	2.81
QMF57001	Henk's Hollow Site							4.38	3.16	3.2	4.46	3.31	3.51	4.98	3.36	3.16			
QMF57008	Henk's Hollow Site			3.81	2.33						4.2	3.06	3.01						
QMF20457	Henk's Hollow Site	3.74	2.74	3.67	2.64														
QMF20383	Henk's Hollow Site					7.29	3.29												
QMF20262	Henk's Hollow Site			4	2.97	7.36		4.14	3.18	3.36	4.59	3.6	3.51	5.15	3.82	3.71			
QMF20501	Henk's Hollow Site										4.7	3.26	3.45	5.12	3.48	3.5			

TABLE S1. (Continued)

Specimen	Riversleigh Locality	dp2		dp3		p3		m1			m2			m3			m4		
		L	W	L	W	L	W	L	AW	PW	L	AW	PW	L	AW	PW	L	AW	PW
QMF20421	Henk's Hollow Site					7.19	3.52												
QMF23531	Jim's Carousel Site										4.66	3.61	3.62	5.08	3.71	3.74			
QMF24187	Jim's Carousel Site					7.15	3.91	4.2	2.95	3.16	4.27	3.25	3.33	4.45	3.36	3.36			
QMF52801	Keith's Chocky Block Site																		
QMF52800	Keith's Chocky Block Site					6.49	3.35	3.89	2.62	2.72	4.04	3	2.89	3.91	3.15	3.08	4.15	3.15	2.89
QMF52799	Keith's Chocky Block Site										4.47	3.38	3.35	4.98	3.25	2.97			
QMF52798	Keith's Chocky Block Site										4.01	2.91	2.93	4.08	3.08	3.07			
QMF57013	Keith's Chocky Block Site										4.47	3.17	3.15						
QMF57015	Keith's Chocky Block Site										4.55	3.15	3.16						
QMF57014	Keith's Chocky Block Site										4.37	3.12	3.18						
QMF57016	Keith's Chocky Block Site										4.41	3.12	3.08						
QMF57017	Keith's Chocky Block Site										4.51	3.34	2.99						
QMF57018	Keith's Chocky Block Site										4.4	3.25	2.82						
QMF57019	Keith's Chocky Block Site										4.52	3.16	3.06						
QMF57012	Keith's Chocky Block Site							3.98	2.48	2.82									
QMF30789	Keith's Chocky Block Site					7.49	3.39	4.4	3.07	3.4	4.64	3.56	3.68						
QMF20276	Last Minute Site										4.44	3.3	3.44						
QMF20461	Last Minute Site							4.06	3.03	3.32	4.31	3.53	3.54	4.68	3.61	3.45			
QMF20469	Main Site							3.96	2.8	2.77	4.47	3.27	3.01						
QMF56313	Melody's Maze Site										4.47	3.78	3.81	4.55	3.6	3.39			
QMF36572	NJC8 Site									3.2	4.5	3.69	3.52						
QMF56316	NJC8 Site					6.95	3.38												

TABLE S2. Measurements of the upper dentition of type and referred material of *Ganguroo robustiter* in mms. L = anteroposterior length, AW = anterior width, PW = posterior width, dp = deciduous premolar, p = premolar, m = molar.

Specimen	Riversleigh Locality	DP2		DP3		P3		L	M1		L	M2		L	M3		L	M4	
		L	W	L	W	L	W		AW	PW		AW	PW		AW	PW		AW	PW
QMF36338	AL90 Site	4.54	2.93	4.08	3.26	7.45	3.03	4.39	4.07	3.86	4.65	4.26	4.15	5.14	3.98	3.73			
QMF36338	AL90 Site	4.51	3.06	4.16	3.19	7.5	3.53				4.55	3.95	3.83	5.22	4.29	4.06			
QMF41237	AL90 Site					7.24	3.49	4.18	4.29	3.46	4.54	4.36	3.81	4.48	4.27	3.49	4.64	4.05	3.1
QMF41237	AL90 Site					7.14	3.19	4.18	4.25	3.67	4.34	4.32	3.63	4.59	4.19	3.49	4.7	4.04	3.08
QMF36359	AL90 Site					7.29	3.49	4.1	3.95	3.81	4.3	4.32	3.63	4.5	4.25	3.49	4.5	3.97	2.89
QMF36359	AL90 Site					7.32	3.5	4.06	3.98	3.85	4.32	4.39	3.89	4.59	4.34	3.55	4.36	3.93	2.85
QMF40014	AL90 Site					8.28	4.1	4.44	4.18	3.97	4.59	4.39	3.94	4.82	4.3	3.86	4.49	4.05	3.45
QMF40014	AL90 Site					8.16	4.08	4.27	4.05	4.09	4.59	4.25	4.06	4.93	4.25	3.84	4.69	4.08	3.37
QMF30845	AL90 Site	4.14	3.48	3.69	3.56			4.4	3.92	3.92	4.03	3.95	3.66						
QMF30845	AL90 Site	4.45		3.77	3.87			4.44											
QMF56301	AL90 Site	4.56	3.43	4.28	3.72			4.44	4.51	4.1	4.96	5.05	4.02						
QMF56310	AL90 Site							4.02	4.22	4.07	4.33	4.33	3.83	4.55	4.51	3.86	4.11	3.97	3.03
QMF56298	AL90 Site	4.32	3.11	4.25	3.34			4.33	4.04	3.56									
QMF57287	AL90 Site	4.78	3.59	4.54	3.44			4.77	4.06	3.97									
QMF57287	AL90 Site	4.78	3.55	4.43	3.56			4.66	4.15	4.07	5.25	4.31	4.07						
QMF36478	AL90 Site						3.9	4.4	4.04	3.6	4.76	4.22	3.83	5.05	4.53	3.71	5.21	3.92	3.01
QMF36478	AL90 Site					7.58	4.02	4.64	4.13	3.93	4.6	4.5	3.78	4.72	4.53	3.96	4.92	4.02	3.24
QMF30814	Cleft of Ages 4 Site													4.39	4.28	3.85	4.5	3.99	3.3
QMF36256	Cleft of Ages 4 Site					7.56	3.47												
QMF20619	Cleft of Ages 4 Site							4.67	4.43	4.27	5.14	4.86	3.64	5.25	4.84	4.01	4.8	4.56	3.33
QMF20586	Cleft of Ages Site					7.92	3.73	4.34	4.19	3.85	4.91	4.33	3.86	4.85	4.38	3.56	4.56	3.89	2.76
QMF52810	Dome Site					7.6	3.7	4.41	4.22	4.17	4.77	4.57	4.23	5.11	4.66	3.92	5.37	4.17	3.1
QMF55102	Encore Site										6.09	5.72	5.13						
QMF55106	Encore Site																5.55	4.61	3.86
QMF55103	Encore Site					8.38	3.98												
QMF55109	Encore Site													6.47	5.51	5.17			

TABLE S2. (Continued)

Specimen	Riversleigh Locality	DP2		DP3		P3		M1			M2			M3			M4		
		L	W	L	W	L	W	L	AW	PW	L	AW	PW	L	AW	PW	L	AW	PW
QMF55109	Encore Site										5.45	5.11	4.28						
QMF55108	Encore Site							5.16	4.68	4.25									
QMF55108	Encore Site																5.46	4.44	3.47
QMF55108	Encore Site										5.52	4.5	4.02						
QMF55108	Encore Site							5.01	4.34	4.06									
QMF55108	Encore Site							5.19		4.78									
QMF55108	Encore Site			4.48	4.13														
QMF20526	Gag Site	4.61	3.54	4.49	3.54			4.61	3.97	3.26	4.89	3.96	3.92						
QMF20334	Gag Site					7													
QMF20347	Gag Site					7.66	3.83												
QMF36380	Gag Site					7.95	4.16	4.5	4.18	4.1	4.32	4.42	4.13	4.51	4.26	3.66	4.19	3.87	2.81
QMF36380	Gag Site					8	4.14	4.28	4.17	3.83	4.52	4.39	4.08	4.4	4.32	3.8	3.99	3.9	3.09
QMF57005	Gag Site										4.87	4.68	4.08	5.08		3.86			
QMF57005	Gag Site							4.74	4.32	4.14	4.92	4.69	4.11	5.05	4.87	3.73	4.96	4.17	3.62
QMF56307	Gag Site					9.22	4.63	4.79	4.77	4.14	4.76	4.52	3.92						
QMF31353	Golden Steph Site							4.53	4.34	4.25	4.82	4.46	4	5.06	4.48	3.77	4.57	3.99	2.9
QMF31353	Golden Steph Site									4.11	4.58	4.42	3.87						
QMF57004	Henk's Hollow Site					7.53	3.7	4.25	3.8	3.5	4.37	4.1	3.55	4.46	4.25	3.48	4.06	3.7	2.45
QMF20372	Henk's Hollow Site					8.61	4.69												
QMF20405	Henk's Hollow Site					7.79	4.46												
QMF20438	Henk's Hollow Site					8.79	4.33												
QMF20392	Henk's Hollow Site					8.4	4.31												
QMF20352	Henk's Hollow Site										4.61	4.42	4.16						
QMF20552	Henk's Hollow Site										5.09	4.72	4.36	5.15	4.63	3.98			
QMF57011	Jaw Junction Site	4.44	3.52	4.29	3.57	7.98	4.04	4.81	4.51	4.32	5.48	5.18	4.46	5.59	5.05	4.57			
QMF57011	Jaw Junction Site	4.16	3.25	4.3	3.64						5.17	4.65	4.16	5.88	4.75	3.97			
QMF23530	Jim's Carousel Site	4.75	3.52		3.73			4.84	4.21	4.21	5.15	4.48	4.18	5.35	4.49				

TABLE S2. (Continued)

Specimen	Riversleigh Locality	DP2		DP3		P3		L	M1		L	M2		L	M3		L	M4	
		L	W	L	W	L	W		AW	PW		AW	PW		AW	PW		AW	PW
QMF52802	Keith's Chocky Block Site					7.53	3.38												
QMF52803	Keith's Chocky Block Site					7.4													
QMF52803	Keith's Chocky Block Site					7.65													
QMF20530	Main Site					9.04	4												
QMF57009	Melody's Maze Site					9.21	4.1	4.61	4.48	4.27									
QMF56315	Rick's Sausage Site					7.52	3.46												
QMF57010	Skull Site							4.51	4.53	4.46	5.08	5.23	4.22	5.23	4.37	3.92			
QMF57010	Skull Site			4.74	4.06			4.8	4.61	4.41	5.2	4.86	4.41	5.4	4.49	4.02			

TABLE S3. Univariate statistics of type and referred material of *Ganguroo robustiter*. N = number of specimen, Min = minimum measurement, Max = maximum measurement, L = anteroposterior length, AW = anterior width, PW = posterior width, p/P = lower/upper premolar, m/M = lower/upper molar.

	N	Min	Max	Mean	Standard error	Variance	Standard deviation	Coefficient of Variation
p3L	32	6.31	8.58	7.18	0.09	0.26	0.51	7.08
p3W	28	3.12	4.22	3.63	0.05	0.08	0.29	7.97
m1L	38	3.69	4.46	4.09	0.02	0.03	0.16	3.95
m1AW	38	2.48	3.68	2.98	0.03	0.04	0.21	7.04
m1PW	39	2.72	3.81	3.14	0.03	0.04	0.20	6.34
m2L	53	3.86	4.96	4.38	0.03	0.04	0.21	4.70
m2AW	53	2.91	3.9	3.36	0.03	0.04	0.21	6.15
m2PW	52	2.82	3.81	3.32	0.03	0.05	0.23	6.86
m3L	33	3.91	5.61	4.66	0.07	0.15	0.39	8.30
m3AW	32	3.08	4.3	3.54	0.04	0.06	0.24	6.79
m3PW	33	2.97	4.2	3.41	0.05	0.07	0.27	8.01
m4L	16	4	5.19	4.60	0.09	0.12	0.35	7.65
m4AW	17	2.89	3.72	3.38	0.06	0.05	0.23	6.82
m4PW	16	2.49	3.61	3.04	0.07	0.08	0.29	9.45
P3L	30	7	9.22	7.89	0.11	0.37	0.61	7.72
P3W	28	3.03	4.69	3.87	0.08	0.18	0.42	10.83
M1L	34	4.02	5.19	4.52	0.05	0.09	0.29	6.47
M1AW	32	3.8	4.77	4.24	0.04	0.05	0.23	5.52
M1PW	34	3.26	4.78	4.01	0.05	0.10	0.31	7.79
M2L	36	4.03	6.09	4.82	0.07	0.18	0.43	8.86
M2AW	36	3.95	5.72	4.52	0.06	0.14	0.38	8.38
M2PW	36	3.55	5.13	4.03	0.05	0.09	0.30	7.34
M3L	28	4.39	6.47	4.99	0.09	0.23	0.48	9.64
M3AW	27	3.98	5.51	4.48	0.06	0.10	0.31	7.01
M3PW	27	3.48	5.17	3.86	0.07	0.12	0.35	9.08
M4L	20	3.99	5.55	4.68	0.10	0.21	0.45	9.71
M4AW	20	3.7	4.61	4.07	0.05	0.05	0.23	5.66
M4PW	20	2.45	3.86	3.14	0.07	0.11	0.33	10.48